Final

Memphis Depot

BRAC Cleanup Team

Meeting Minutes

June 15, 2005

BRAC Cleanup Team	Organization	Phone/email
Michael Dobbs	Defense Logistics Agency (DLA)/Defense Distribution Center (DDC) J-3/J-4E	717.770.6950
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Project Team	**Organization**	**Phone**
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Steve Youngs	MACTEC Engineering	770.421.3400
Tom Holmes	MACTEC Engineering	770.421.3373
Denise Cooper	MACTEC Engineering	901.774.3681
Bruce Railey	Corps of Engineers – Huntsville	256.895.1463
David Nelson	CH2M Hill	770.604.9182 x645
John K. Miller	Mitretek Systems	703.610.2560

Previous Meeting Minute Approval

The BCT approved and signed the minutes from the May 19, 2005 meeting.

Dunn Field Groundwater Interim Remedial Action (IRA)

Mr. Holmes reported that all the recovery wells were operating properly, and that the MACTEC field team was collecting quarterly effluent and semiannual groundwater samples, using permeable diffusion bags (PDBs) in monitoring wells, this week.

Off Depot Groundwater Remedial Design (RD)

Mr. Nelson presented the preliminary results produced by the MODFLOW and RT3D models for groundwater contamination migrating from Dunn Field. The preliminary model results provided insight into groundwater contaminant flow patterns and anticipated time to reach the remedial goals. The team discussed the results and the assumptions used in the models.

The team agreed that the modeling needed to be refined in order to accurately reflect current conditions as documented by existing sampling and hydrogeologic data as a baseline. The team also agreed that the assumptions used in the models needed to be refined to include site specific geochemical data.

Mr. Ballard requested clarification of the modeling objective by asking what conditions the team was trying to predict - the effect of monitored natural attenuation (MNA) down gradient of the permeable reactive barrier (PRB) or of everything in the offsite plume. Mr. Holmes indicated that the team wanted to model the conditions after implementation of the remedial design in order to determine the MNA component.

Mr. Miller recommended that the model should provide a scenario 50 years in the future with no treatment. He also suggested obtaining the baseline then sequentially adding treatments to see how they affect the plume as it takes a lot of effort to model the affect of all the treatments at once. Mr. Ballard thought that could take too much time to model and reaffirmed the need to determine the model objective.

Mr. Holmes opined the need for scenarios that included the potential impact of the remedial actions: PRB, soil vapor extraction (SVE) and zero-valent iron (ZVI) injections. He was interested in obtaining a picture of contamination levels remaining after treatment to ensure that MNA would reduce the remaining levels to the remedial goals. He indicated that because some contamination was ahead of the PRB, some would come around the PRB and some would be absorbed into soils, the team needed to know how those levels would react to MNA.

Mr. Ballard suggested also modeling contamination that was ahead of the PRB in order to determine how much ZVI to inject down gradient of the PRB and the model results may cause the team to rethink the PRB location and ZVI injections.

Mr. Morrison indicated the need to include the Interim Remedial Action (IRA) in the model because it had impacted the groundwater and contaminant flow. He requested that Mr. Nelson provide information about the IRA to the modelers and ask their opinion on the IRA's impact on model results.

Mr. Dobbs asked about the conceptual site model (CSM) of the site and questioned the need for further modeling. Mr. Nelson responded that the CSM did not provide a numerical simulation of contaminant flow and confirmed the need for the models. Mr. Dobbs confirmed that the BCT and project team were comfortable with the models used. All responded that they were familiar and comfortable with the models being used.

The team confirmed the model objective was to forecast how long MNA would take to decrease chlorinated volatile organic compounds (CVOCs) to maximum contaminant levels (MCLs) down gradient of the treatment area.

The team agreed upon the following model assumptions:

- Calibrate model to current conditions;
- PRB as a continuing source at MCLs;
- Cells north and south of PRB are continuing sources at 50 and 100 µ/l total CVOCs;
- Turn off cells after 7 – 10 years.

Mr. Nelson agreed to prepare and distribute a very short technical memorandum to summarize the objectives and assumptions.

AI: CH2M Hill to prepare and distribute TM summarizing model objectives and assumptions.

Permeable Reactive Barrier Field Trial

Mr. Nelson reported that CH2M Hill had received cost estimates from four companies. He briefly described the scope of work: 50 foot long wall to bottom of fluvial aquifer, above top of water table by two feet, ZVI = 20% by volume, wall could not change hydraulic conductivity. Mr. Ballard asked if the scope included the wall thickness. Mr. Nelson said the scope did not include wall thickness and noted that the scope included a performance standard instead of setting a wall thickness. He provided the companies with ETI's treatability study as guidance in determining wall thickness.

Mr. Nelson presented information regarding each company's construction approach and the cost estimates. He noted that CH2M Hill rejected FRX's proposal based on their construction approach. RECON and Heyward Baker voiced interest in the project as they see value in the process and the potential to break into the market currently dominated by GeoSierra.

Mr. Nelson reported that RECON's proposal included testing their injection procedures at their Houston, TX location; RECON planned to excavate the injection test columns to determine effectiveness of their system. However, he noted that RECON did not have as much experience jetting material as Heyward Baker and that RECON recommended using a smaller size iron to avoid clogging their jetting machinery. Mr. Ballard indicated the smaller iron particle would decrease longevity.

Mr. Nelson stated that Heyward Baker had completed two PRB projects at other locations and that they were the only other jetting company who had done this type of work although they did not have much remediation site experience. Mr. Ballard voiced concern about Heyward Baker's proposal to use air to open up the soil prior to injecting the ZVI as it could decrease the ZVI's effectiveness by increasing the aerobic nature of the aquifer conditions, leading to faster oxidation of the iron. Mr. Nelson responded that air was used in only the first phase of the process to liquefy and mix the formation materials with the "grout slurry," in this case a biopolymer, and create the column for iron installation.

Mr. Railey reported that he had talked with Mr. Jesse Perez of AFCEE about GeoSierra's work at other Air Force remediation sites, but was still working on obtaining the cost estimate information. He said Mr. Perez voiced similar reservations about GeoSierra and indicated they had not constructed a PRB to closure – meaning to construction completion and plume decrease. Mr. Perez was also said to be interested in GeoSierra's procedure for confirming construction completion.

Mr. Ballard returned to the question of iron particle size and indicated that the iron had to be active long enough for the remaining upgradient contaminant mass to move through the wall. He asked how long it would take for the residual mass to move through the wall and if the team could accurately predict if the iron would still be active from the standpoint of the smaller particle size proposed by Heyward Baker vs. the size used by GeoSierra. Mr. Nelson indicated that Heyward Baker said the iron size as proposed by ETI in the PRB Treatability Bench-Scale Test was a problem for their nozzle equipment, but that Heyward Baker mentioned they had talked to Connelly, the iron supplier, about other ZVI products that would meet the performance standards and work with their equipment.

The team discussed the various ZVI delivery methods. Mr. Holmes asked if the GeoSierra cost issue was driving the need to conduct the field trial or were there other concerns at work. Mr.

Dobbs indicated that the Department of Defense wanted to foster competition and did not want to be constricted by having to use this one provider. But, he said, the bottom line was the protection of human health and the environment.

Mr. Holmes asked what decision process was needed in order to move forward with either the field trial or the remedial design. Mr. Dobbs indicated that the team could make the decision to move forward, but that with everything he was reading and hearing he liked the idea of fostering some competition and bringing other technologies to the table. Mr. Ballard indicated that from the regulatory point of view, the system must meet the standards regardless of who constructs it. But he also noted that he was comfortable with a company that did not have much remediation site experience, but had lots of jetting experience.

Mr. Railey recapped issues to be resolved in order to move forward with the field trial: 1) was the cost of iron included in the estimates; 2) how would iron particle size affect results; 3) does Heyward Baker have to use air or can they use something else to avoid oxygenating the aquifer.

Mr. Nelson will get more information about iron size and use of air to fracture the formation from Heyward Baker. Mr. Ballard asked if it was necessary to identify the remedial action contractor prior to completing the remedial design. Mr. Nelson indicated that if the remedial action was to be GeoSierra, then CH2M Hill would have to bring them on board to develop the remedial design based upon GeoSierra's requirements.

Mr. Railey reported that CH2M Hill still needed to obtain a cost estimate for the remedial action work from GeoSierra. Mr. Railey mentioned that the field trial cost estimates would help extrapolate remedial action costs in order to negotiate with GeoSierra and that he would also use Mr. Miller's information about GeoSierra's work at other sites. He agreed to move forward in obtaining cost estimate information and would provide the BCT with information via emails.

Mr. Miller presented the information he gathered regarding other PRBs installed at other sites by GeoSierra. PRBs installed in 2000 and before did not receive good reviews. PRBs installed later received more favorable reviews. Regarding the verification of wall thickness, Mr. Miller reported that GeoSierra does not think it is good to core the wall because sample recovery is very poor. They suggest measuring electrical resitivity or conductivity to determine the wall thickness, but that does not provide empirical evidence of wall thickness.

Mr. Miller discussed differences in the geohydrology at other locations vs. Memphis. He also indicated that monitoring data was limited as only a couple of sites had a long enough monitoring period. He said that overall people were happy with GeoSierra's performance and with the PRB performance. But, he also indicated that most of the available information was generated by GeoSierra and not by others, and that the performance data was limited to just a few years.

AI: CH2M Hill to obtain additional information from Heyward Baker.

AI: CEHNC to obtain GeoSierra cost information from other sites.

Source Areas Remedial Design

Mr. Nelson reported that CH2M Hill was scheduled to negotiate the Source Areas Soil Investigation with CEHNC on June 16. Once negotiations were completed, CH2M Hill would begin writing the work plan.

Disposal Sites Remedial Action

Mr. Holmes reported that MACTEC had submitted the change orders to AFCEE for the additional work at Sites 3 and 10. He indicated that MACTEC had further evaluated the Site 3 disposal requirements and consulted with the TDEC Office of Solid Waste Management. MACTEC would dispose of the bottles and associated soil as hazardous waste. MACTEC would return to the field upon receipt of Notice to Proceed from AFCEE, probably in August or September.

Early Implementation of Selected Remedy (EISR) Interim Remedial Action Completion Report (RACR)

Mr. Holmes reported that he had submitted the EISR report for internal review and was planning to revise the report and submit the Rev. 0 document to the BCT by June 30, 2005. He was also planning to prepare and distribute the final document before the end of this fiscal year. He said that the report was not very long and that it included the Off Site Design Related Investigation (DRI) results, which had also been reviewed by the internal team. Mr. Ballard questioned including the DRI in the RACR. Mr. Holmes indicated that the DRI provided the basis for conducting the EISR.

Mr. Holmes then presented the latest groundwater sampling data. He reported that the MACTEC field team would collect PDB samples in the EISR area this week during the IRA semiannual sampling.

TDEC/EPA Wabash Avenue Investigation

Mr. Spann reported that he was scheduled to tour the site next week. He anticipated that the groundwater monitoring wells would be installed in July. He indicated that the objective of the well locations would be to the find the source by following the plume back to its apparent source. Mr. Dobbs asked where to refer community relations questions. Mr. Spann said to refer any questions to him.

Dunn Field Disposal Sites Area Transfer

Mr. Dobbs reported that since the City had plans to make the entire north end of Dunn Field into a public park, DLA would like to make it happen. Mr. Nelson provided a brief summary of CH2M Hill's risk assessor determination that the disposal area presented an acceptable risk for cancer, but an unacceptable Hazard Index (HI) for a recreational child due to antimony and iron. But, there was a question about where the sample with the unacceptable antimony and iron levels was collected. Mr. Ballard indicated that the soil that presented the unacceptable HI may no longer be there based on the Disposal Sites RA.

Mr. Dobbs asked if the City's desire to make this area a park would change the RA selected in the Dunn Field ROD. Mr. Ballard responded that nothing had changed for groundwater and that other than institutional controls to prevent residential reuse there were no RAs selected for surface soil. He went on to say that the Disposal Sites RA was to protect future utility workers from materials disposed in the pits. Mr. Ballard indicated that if surface soils presented an unacceptable risk for the proposed reuse, then DDC would need a ROD amendment to identify the remedial goals for surface soil.

Mr. Dobbs said that DLA wanted to make it happen, so they wanted him to have the team consider the remedies and their impact on using the area as a park. Mr. Dobbs tabled further discussion until the project team could develop a strategy to move forward.

AI: CH2M Hill to identify location of soil sample with antimony and iron levels resulting in an unacceptable HI.

Main Installation Remedial Action Work Plan

Mr. Holmes reported that all comments were resolved, so MACTEC was working to revise the document for submittal to the BCT. He indicated no other internal review was planned.

Schedule Review

Mr. Holmes distributed the deliverables schedule and reviewed upcoming deliverables. The team discussed the Source Areas Soil Investigation Work Plan and Technical Memorandum. The team concurred that CH2M Hill would present Work Plan information at the July 21 BCT meeting. The team also concurred to conduct an on board review of the 60% Source Areas RD at the October 20 BCT meeting. Mr. Nelson reported that CH2M Hill needed the model results and vendor information to complete the 30% Off Depot RD.

AI: CH2M hill prepare for onboard review presentation of Source Areas Work Plan at the July 21 BCT meeting.

Community Involvement

Mr. Holmes reported that CH2M Hill would conduct the Main Installation Remedial Design public briefing in Memphis on July 21.

Next Meeting

The BCT confirmed the next meeting will be held at Memphis Depot Business Park on July 21, with the internal project team meeting on July 20.

SIGNED 7/15/05
MICHAEL DOBBS DATE
Defense Distribution Center
BRAC Environmental Coordinator
BRAC Cleanup Team Member

SIGNED 7/15/05
TURPIN BALLARD DATE
Environmental Protection Agency
Federal Facilities Branch
Remedial Project Manager
BRAC Cleanup Team Member

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JAMES MORRISON DATE
Tennessee Department of Environment and Conservation
Memphis Field Office
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BRAC Cleanup Team Member